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## **New Zealand**

## **Biotechnology**

## **GM Crop Find Update**

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**Report Highlights:** The New Zealand seed company Pacific Seeds reported to the Government in August that laboratory tests found genetically modified (GM) maize seeds in samples from two crops grown in New Zealand. Subsequent test results confirmed that the origin of the GM content in the maize was linked to the original parent seed lines imported from the United States. All GM material has been destroyed.

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Includes PSD changes: No  
Includes Trade Matrix: No  
Unscheduled Report  
Wellington [NZ1], NZ

## **GM Status**

New Zealand's Environmental Risk Management Authority (ERMA) has not yet approved genetically modified organisms (GMOs) for commercial release into the environment. Applications for the release of GMOs into the New Zealand environment cannot be considered for approval by ERMA until the Government's moratorium on the commercial release of GMOs expires on October 29, 2003..

## **New Zealand Discovery of Imported GM Seed**

On August 7, 2002, the New Zealand Ministry of Agriculture and Forestry (MAF), the Ministry for the Environment, and ERMA were informed by Pacific Seeds that maize grown in New Zealand had tested positive for genetic modification (GM). Pacific Seeds, the importer of the parent maize (corn) seed line, had inadvertently introduced a organism that was not approved by ERMA.

Pacific Seeds had produced maize crops in Gisborne and Pukekohe in the North Island from seeds imported from the U.S. Pacific Seeds had intended to sell the crops as planting seed both within New Zealand and to export markets outside of New Zealand. Pacific Seeds imported the parent seed from the Garst Company of the United States between April and September 2001. As part of Pacific Seed's quality control program, it sent a composite sample (approximately 1,400 seeds) from the imported shipment to GeneScan of Australia for testing. Test results were negative for GM content. Please note that ERMA only introduced a regulatory requirement to test imported maize seed for sowing for the presence of GM content on August 1, 2002. We also understand, that the U.S. maize seed was tested prior to shipment to New Zealand by Monsanto and no GM content was detected.

Pacific Seeds had the imported seeds planted for its seed multiplication program on approximately 12.3 hectares in Gisborne and on about 13.2 hectares in Pukekohe. As before, this testing was done as part of Pacific Seeds' own quality control system. The parent lines were planted on 13 fields, 11 (12.5 hectares) were planted with both parent lines to produce hybrid seed, the remaining 2 (0.7 hectare) were planted with one of the parent lines to produce inbred seed.

Approximately 33.5 tons of planting seed that was produced from the imported U.S. maize was stored in warehouses in Gisborne and Pukekohe by Pacific Seeds. Additionally, some quantity of the original shipment from the U.S. was still being held by Pacific Seeds. Some amount of crop grown in Gisborne along with husked cobs and other crop residue was shipped by Pacific Seeds to Edgecumbe in the North Island for utilization in the production of animal feed.

Pacific Seeds sent a representative sample (1,400 seeds) taken from the hybrid seed produced in Gisborne and Pukekohe to GeneScan in Australia for testing in late July 2002. Again, this represented Pacific Seeds own quality control measures. Test results received on August 6 by Pacific Seeds were positive for the 35S sequence indicating that GM content was present. Further testing by GeneScan at the request of Pacific Seeds showed a GM seed concentration presence of less than 0.05 percent (fewer than 1 in 2000 seeds). The GM varieties detected included Bt176 and YieldGard.

## **GM Material Destroyed**

After consulting with appropriate ministries, ERMA decided to secure all the seeds in question and have samples of the parent seed imported into New Zealand as well as the hybrid seeds produced in New Zealand retested. The fate of the seeds would be decided by ERMA after test results became available. Seed samples were sent to Ministry of Agriculture and Forestry (MAF) accredited laboratories: Biogenetic Services in the U.S. and to GeneScan in Australia during the second half of August 2002. Before test results were available, however, Pacific Seeds took action. All planting seed produced from the imported parent material along with crop residue products were sent to Auckland where they were incinerated under MAF supervision. Government officials emphasize that the decision to destroy the produced crop was done by Pacific Seeds.

Since it was going to be some time before results from ERMA's-ordered tests would be available, MAF and ERMA together decided that it was necessary to proceed on the assumption that some GM plant material had in fact been produced in Gisborne and Pukekohe. ERMA further determined that regulatory measures were needed to ensure that potential volunteer plants subsequently emerging from the likely contaminated fields would be destroyed. MAF and ERMA instructed Pacific Seeds on August 30, to stubble mulch all fields. The fields were then plowed to incorporate the mulched material. Fields experiencing volunteer plant growth will be subject to herbicide spray.

## **Retest Results Confirm GM Presence**

Based upon laboratory test results obtained, ERMA and other involved Government ministries concluded that:

- conventional hybrid maize containing very small concentrations of GM varieties was grown in Gisborne and Pukekohe; and
- it is very likely that the source of this seed was due to the presence of very small concentrations of GM seed in the imported parent lines; and
- it is very unlikely that any GM seed in the hybrid maize was the result of cross-pollination from crops being cultivated in adjoining fields.

Based upon the test results and the areas cultivated, ERMA concluded that it was likely that as many as 319 GM-plants were grown in Gisborne and up to 463 plants were produced in Pukekohe. In sum, 782 GM-maize plants were produced in New Zealand's North Island from U.S. seeds which produced in total approximately 1.8 million plants. ERMA further concluded that it was likely that GM seeds were not detected at the time of testing parent lines following importation because of the very low concentration levels of GM seed. Although testing methods are sensitive, the limit of reliable detection is around 0.01 percent.

MAF remarks that this incident highlights the problem that no matter what testing regime is applied to imported seeds, there is always a possibility that GM seeds will go undetected if they are present at a very small concentrations. New Zealand's current testing regime is designed to give a high level of

confidence that GM seeds will be detected if they are present at concentrations of at least 0.01 percent. This is important for seeds that will be planted in New Zealand as well as seeds that are being certified as GM free for export sale as was the case with Pacific Seeds.

### **New GM Seed Testing Protocol for *Zea mays* (maize) Imports**

The new testing protocol introduced on August 1, 2002 aims to prevent the unapproved release of genetically modified varieties and sub-species of *Zea mays* into the New Zealand environment through seed imported for sowing. The new protocol does not apply to corn imported for non-planting purposes. Under the Hazardous Substances and New Organisms Act 1996 (HSNO), unapproved organisms, including viable seeds, are new organisms and prohibited from importation, field-testing or release without approval from ERMA. To date, no GM organisms have been approved for release in New Zealand. No application to release GM organisms can be made before October 29, 2003, which is the date that the Government's existing moratorium on the release of GM organisms expires.

The protocol requires that every consignment must be tested for the presence of unapproved GM seeds. Importers can either sample and test the consignment at the border or provide certification that all seed lines/varieties in the consignment have been tested. If requested, MAF will consider the option of area freedom from commercial GM production on a crop/country basis. MAF will grant area freedom conditionality if the country can demonstrate that it has sufficient systems in place to provide a level of assurance equivalent to testing every consignment.

Currently there are no international standards or agreed methods for assessing area of freedom from commercial GM production so to some extent MAF will have to make judgements based on available information. MAF will develop its own New Zealand standard but it will not be in place before the 2003 import season. Until then, MAF will consider evidence from appropriate regulatory authorities on a case-by-case basis and may grant interim area freedom status. Until a standard is developed, it is not possible for MAF to specify the exact criteria. MAF has indicated that would need to be presented evidence of the following before granting area freedom status from commercial GM production:

- A robust regulatory system for approving the environmental release of GM crops;
- No approval for commercial release of GM varieties of the crop in question;
- Sufficient control over any GM field trials of the crop in question to prevent cross-pollination or mixing with seed produced for sowing and export to New Zealand;
- Appropriate systems in place at the border to confirm the source and identity of imported seeds and to allow the detection of illegal imports of unapproved GM seeds;
- No reliable evidence that unapproved GM varieties of the crop have been grown.

However, importers of small quantities, i.e. less than 5 kilograms per line, of seed for cultivar trials and/or multiplication will have three further or modified options:

- Test samples can be collected by either taking some seed from a number of randomly selected small packets of seed, or by taking a random selection of whole packets of seeds.

- Untested seed may be imported into, and grown in a quarantine facility. During growth and before pollen is produced, MAF will test leaf disc samples for GM material.
- Untested seed may be imported into, and grown in an appropriate quarantine facility registered and operated according to a MAF Biosecurity Authority Standard. The importer must sign a declaration that the seeds have been produced under a quality assurance system to avoid contamination by GM seeds and are not known to contain GM seeds. The plants will not be tested and will not receive biosecurity clearance. Once the trial is complete, all harvested seeds must be exported out of New Zealand and the remaining vegetative material destroyed, including any emerging volunteer plants.

### **Testing Status for Imports of U.S. Planting Seed**

Whether the new testing protocol will affect U.S. exports of seeds into New Zealand is unclear given that the protocol has been in place only 2 months. However, the testing regime will require every consignment of maize seed imported from the United States to be tested for GM content since the United States does not qualify for area of freedom status under MAF's criteria for this crop.